SOME BASIC RESULTS IN GABOR ANALYSIS

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In this talk I present some basic results in Gabor analysis. This includes the density theorem for Gabor systems (which are function systems of the form:

$$\mathbb{R} \ni t \mapsto \exp(2\pi imbt)g(t - na),$$

integer n and m, with "window" $g \in L^2(\mathbb{R})$ and "shift parameters" $a, b > 0$). The duality theorem concerning systems with parameters a, b and parameters $1/b$, $1/a$ is discussed in this context. Furthermore, for the critical case (where $ab = 1$), the role of the Zak transform is explained and the Balian-Low theorem with a sharp converse of it is presented.